

RemarksStatus of the Application

Claims 257-277 were pending in the application at the time the Office Action was mailed. Claims 257-277 were rejected. No claims were allowed. In this reply, claims 257, 259, 260, 263, 264, 267, 271, and 277 have been amended, and no claims have been added or canceled. Therefore, claims 257-277, as amended, remain pending. Consideration of these claims is respectfully requested.

Rejections Under 35 U.S.C. §102

In the Office Action, claims 257-262, 269 and 270 were rejected under 35 U.S.C. 102(e) as being anticipated by Krylov (US 6,658,889). Although applicants respectfully disagree with this rejection, in order to expedite prosecution of this application, independent claim 257 from which the remainder of the rejected claims depend has been amended to clarify the differences between the present invention and the teachings of Krylov.

Krylov fails to teach a "a concentrate discharge system ... comprising an inlet for receiving the diluted concentrate and a discharge port for discharging the diluted concentrate from the first sea-going vessel into the body of seawater."

The Office Action points to the WB (waste brine) of Fig. 1 in support of its argument that Krylov describes a concentrate discharge system. Nowhere in Fig. 1, however, does Krylov teach any structure having a diluted concentrate inlet and a discharge port for discharging concentrate into a body of seawater. Cf. the concentrate discharge systems 207 shown in Figs. 4, 6, and 7 of the present application. The WB component of the embodiment of Fig. 1 is

WPB:243515:1

described in the specification at Col. 5, lns. 31-32 which merely indicates "...waste brine is transported to a collecting tank 12 or fish tanks FT (Fig. 9.)"

In the advisory action mailed April 19, 2006 (the "Advisory Action"), the examiner argues that "...Krylov makes slush continuously, and the slush would be inherently discarded when it becomes useless, which is not at land, but at any time in the ocean during the fishing process." Applicants dispute this contention and note that (i) nowhere does Krylov indicate that its slush-making device operates continuously even after the fishing vessels holds are filled¹, (ii) nowhere does Krylov teach that its slush becomes useless during the fishing process², and (iii) nowhere does Krylov teach that used slush is disposed of in the ocean during the fishing process. Consistent with this, Krylov does not teach any structure whatsoever for disposing of its slush into the ocean, much less "a concentrate discharge system ... comprising an inlet for receiving the diluted concentrate and a discharge port for discharging the diluted concentrate from the first sea-going vessel into the body of seawater" as recited in claim 257.

Regarding anything inherent in Krylov, MPEP §2112 indicates " '[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)" and "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re*

¹ It would be nonsensical to continue to produce slush after the vessel's fish holding compartments are filled to capacity. Reference to continuous process does not refer to never turning off slush production, but rather to a process that does not absolutely require stopping ice production at some point in the ice making process.

² In fact, at Col. 5, lns. 52-54, Krylov appears to teach away from this in stating its ice slush tube "...produces a low temperature ice slush that significantly prolongs ice storage life and consequently the fish storage life." If such slush was continually replaced during the fishing process than prolonging ice storage life would be inconsequential to fish storage life.

Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).” Although disposal of used slush into the ocean may occur, it does not necessarily flow from the teachings of Krylov. In fact, a number of other possibilities exist. First, it is possible that the ice slush is not disposed of until it is offloaded onto a dock along with the fish. See footnote 2. Second, the liquid that results from melting of the ice slush could be returned to Krylov’s ice slush tube and refrozen.³ In addition, even if it could be proven that Krylov inherently teaches disposal of used slush into the ocean, because this could be achieved in any number of ways (e.g., a bucket), “a concentrate discharge system … comprising an inlet for receiving the diluted concentrate and a discharge port for discharging the diluted concentrate from the first sea-going vessel into the body of seawater” could not in any way be considered to necessarily flow from Krylov.

Krylov fails to teach “a desalinated water transfer system installed aboard the first sea-going vessel and comprising a second conduit fluidly connecting the membrane-based water desalination system to a means for delivering desalinated water from the first sea-going vessel to a land-based distribution system, the second conduit capable of transporting at least 10 million gallons per day of desalinated water from the membrane-based water desalination system to the means for delivering desalinated water from the first sea-going vessel to the land-based distribution system.”

The Office Action argues that Krylov teaches a desalinated water transfer system capable of transferring the desalinated water to a land-based distribution center and in support thereof points to “a tank and outlet control valves 3 and 9.” While Krylov describes the potable water

³ See Krylov Fig. 9 which appears to show liquid from the bottom of the fish hold being pumped back up to the ice slush tube.

storage tank 3 (at Col. 5, ln. 31), it does not describe any component 9. Fig. 1 shows a component 9 which might be a pump (*cf.* submersible pump 8). Fig. 1 also shows what appear to be two outlet valves and lines- although they are not shown communicating with any other component. In any case, Krylov clearly does not anticipate the present invention because it does not teach a "... conduit fluidly connecting the membrane-based water desalination system to a means for delivering desalinated water from the first sea-going vessel to a land-based distribution system."

Any argument that it can be inferred that the two outlet valves and lines are intended to communicate with a means for delivering desalinated water to a land-based distribution system is illogical. To arrive at Applicants' desalinated water transfer system from Krylov, one would have to show that one of the outlet lines from water storage tank 3 leads to a conduit that is fluidly connected to another device capable of transferring the water to a land-based system. There, however, would be no reason to assume that this would be the case because Krylov's device is arranged to only produce such a small amount of potable water⁴ that transferring such small amount to a land-based distribution system would be impractical and essentially useless for any practical purpose.⁵ Rather it is more probable that Krylov's apparent outlet lines lead to the internal plumbing on the vessel to provide fresh drinking water to its crew. The Advisory Action mentions that a bucket might be used to transfer desalinated water. Krylov does not mention a bucket, and a bucket is not a conduit.

⁴ About 400 gallons per day; an amount perhaps suitable for exclusive use onboard a small fishing vessel.

⁵ Claim 257 also includes the limitation not taught by Krylov: a "conduit capable of transporting at least 10 million gallons per day of desalinated water from the membrane-based water desalination system to the means for delivering desalinated water from the first sea-going vessel to the land-based distribution system."

Claim 259

Krylov neither teaches or suggests a mixing tank with baffles and a mixing barrier. This would render Krylov's slush tube inoperative for the purpose of making ice slush because such baffles and barrier would cause the slush tube to lock up as the ice accumulated.

Claim 261

Applicants' do not see how any of the components of the embodiments shown in Krylov's Figs. 5A or 5B could properly be construed as a high speed paddle mixer. Should the examiner persist in this rejection, Applicants respectfully request that the examiner explicitly point out which component shown in Figs 5A or 5B he considers to be a high speed paddle mixer.

None of the present claims are anticipated by Krylov

Because none of the pending claims are anticipated by Krylov, withdrawal of all §102 rejections is respectfully requested.

Rejections Under 35 U.S.C. §103

The Office Action rejected claims 257-262 and 264-277 under 35 U.S.C. 103(a) as being unpatentable over the combination of Krylov and Bosley (US 6,348,148). Additionally, claim 263 was rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Krylov, Bosley and Bailie (US 4,356,785).

The Office Action admits that Bosley fails to teach a desalination system installed on a sea-going vessel, diluting concentrate with seawater before discharge, a sea-floor embedded

WPB:243515:1

pipeline, or the capacity to produce 10-100 million gallons of desalinated water per day. To supply these missing elements, the Office Action relies on Krylov for a system installed on a sea-going vessel, *In re Four* for the proposition that a pipeline running across the seafloor is equivalent to a seafloor-embedded pipeline for the purpose of patentability, *In re Rose* and other cases for the proposition that it would have been obvious to scale up Bosley's apparatus to reach a given capacity. The Office Action further argues in the alternative that, although Krylov differs from the claimed invention "in the recitation of the various ways of transferring desalinated water to shore," it would have been obvious to use the teachings of Bosley for this purpose.

Even if Krylov, Bosley, and Bailie were properly combinable, the resulting combination would still not teach all limitations in any of the present claims

Among the criteria for establishing a *prima facie* case of obviousness, the combined prior art references must teach or suggest all claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Regarding each of the claims rejected under this section, for the reasons presented above, Krylov fails to teach "a concentrate discharge system ... comprising an inlet for receiving the diluted concentrate and a discharge port for discharging the diluted concentrate from the first sea-going vessel into the body of seawater" or "a desalinated water transfer system installed aboard the first sea-going vessel and comprising a second conduit fluidly connecting the membrane-based water desalination system to a means for delivering desalinated water from the first sea-going vessel to a land-based distribution system, the second conduit capable of transporting at least 10 million gallons per day of desalinated water from the membrane-based water desalination system to the means for delivering desalinated water from

WFB:243515:1

the first sea-going vessel to the land-based distribution system."

Bosley describes discharging undiluted concentrate directly into the surrounding body of water, but not a discharge system "comprising an inlet for receiving the diluted concentrate and a discharge port for discharging the diluted concentrate from the first sea-going vessel into the body of seawater" or a step of "discharging the diluted concentrate from the first sea-going" Bosley, in fact, teaches away from the desirability of diluting concentrate before its discharge to mitigate any environmental damage. See Bosley at Col. 4, lns. 11-14 ("The present invention allows an offshore desalination facility to release its brine into mid-water, where *mixing with the ocean current* is more efficient, with fewer effects upon bottom-dwelling flora and fauna."). As the Office Action admits, Bosley also does not teach a mixing system configured to dilute concentrate with seawater before discharge into the body of seawater. Bailie does not describe either a concentrate discharge system or a mixing system. Thus even if Krylov, Bosley, and Bailey were properly combinable for the purposes of §103, they still would not teach all the limitations of independent claims 256 and 270 or any claim dependent thereon.

Krylov, Bosley, and Bailie are not properly combinable for the purposes of §103 because the prior art lacks a teaching or suggestion to combine the references and the proposed modification would render the prior art unsatisfactory for its intended purpose

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

Regarding the teaching or suggestion to combine Krylov and Bosley, the Office Action
WPB:243515:1

states:

Regarding the sea-going vessel and mixing the concentrate with seawater before discharge: Krylov teaches a desalination system on a fishing ship having the concentrate mixed with seawater as claimed.... It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Krylov in the teaching of Bosley to have the installation on a moving vessel and to have desalinated water production as secondary to an application such as the slush making of the brine because the combination is very useful in making stable slush as seen in figure 8 of Krylov (stable slush at a higher concentration).

Applicants again respectfully ask for clarification regarding what the examiner is trying to convey regarding the combination of Krylov and Bosley. For the purpose of this response, Applicants have assumed that the Office Action is arguing that Bosley's apparatus can be installed on Krylov's ship so that the concentrate discharged by Bosley's apparatus can be used by Krylov's slush tube for the purpose of making a more stable ice slush. Applicants do not understand how such a combination would result in a more stable slush and do not find that either reference teaches a need to improve the slush made by the Krylov process or a teaching of how this could be achieved. Why would the concentrate from Bosley's apparatus be more useful than the concentrate from Krylov's apparatus for the purpose of making ice slush? If one already has a supply of concentrate (i.e., the result of reverse osmosis on Krylov's vessel), why would one seek to obtain additional concentrate from Bosley's sea-floor anchored apparatus?

Furthermore, after carefully reviewing Bosley and Krylov, Applicants did not find any suggestion that either of the systems taught therein could be improved by incorporating technology from the other reference. In fact, Applicants also could not find in either Bosley, Krylov, or Bailie a teaching or suggestion to combine two or more of these references for any purpose whatsoever. Although Applicants' patent application might provide motivation to pick and choose from the various aspects of Bosley, Krylov, and Bailie to try to arrive at the presently

WPB:243515:1

claimed invention, it is improper for an examiner to use an applicant's own application as a basis for the motivation to combine or modify prior art for this purpose. *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984); *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988) (both the suggestion and reasonable expectation of success must be found in the prior art, and not in the applicant's disclosure).

In addition to the foregoing, the proposed combination of Krylov and Bosley is improper because the resulting combination would result in a system inoperable for its intended purpose. See *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (finding no suggestion to modify a prior art device where the modifications would render the device inoperable for its intended purpose). Krylov teaches a fishing vessel having on-board a combination water desalination/ice slush making apparatus where the desalinated water output capacity is about 400 gallons per day and the ice slush is used to preserve fish contained in a hold of the fishing vessel. Bosley teaches a completely unrelated apparatus, namely, a mostly submerged, water pressure-driven, sea-floor anchored, reverse osmosis-based water desalination system. The physical incorporation of Bosley's system into/onto Krylov's fishing vessel would yield an apparatus inoperable for the intended purposes of either Bosley's or Krylov's technology. For instance, because Bosley's apparatus is relatively large and mostly submerged it would impede movement of Krylov's fishing vessel over the surface of a body of water for the purpose of catching fish. As one example, Bosley indicates that its several pressure hulls are submerged at a depth at which the ambient water pressure is several atmospheres⁶ (see Col. 2, lns. 60-61)- a set up that would undoubtedly interfere with the fish catching operation of Krylov's vessel. Anchoring of Bosley's apparatus would also prevent movement of Krylov's

⁶ 1 atmosphere =10 meters
WPB:243515:1

fishing vessel. As another example, Krylov's slush tube requires the input of WB resulting from the reverse osmosis process, but Bosley's technology disposes of its WB deep under the sea's surface using gravity. Re-orienting Bosley's apparatus so that it could feed WB into Krylov's slush tube would not only be an incredible feat of engineering but also would almost certainly disrupt the water-pressure and gravity forces necessary to operate Bosley's device. For the same reason, adding the transfer vessel of Bailie would not remedy the foregoing operability issues.

The Advisory Action summarily dismisses the foregoing argument by stating that "[t]here is no reason why the use the concentrate stream of a desalination plant for making ice slush as taught by Krylov would not work." Should the examiner persist with this rejection, a more detailed statement addressing Applicants' points is respectfully requested.

Regarding Bosley not teaching the claimed (claim 276) 10 to 100 million gallons per day capacity, the Office Action relies on legal precedent for the proposition that mere scaling up of a prior art process does not impart patentability to a claim. For example, the Office Action relies on *Gardner v. TEC Systems, Inc.* (725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984)) stating that "the Federal circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device." Clearly, however, the presently claimed invention is not a mere scaling up of either Krylov's vessel with ice slush tube or Bosley's sea floor-anchored apparatus because, as set forth above, the presently claimed invention exhibits several differences over Krylov, Bosley, or the combination of Krylov and Bosley. In addition, the claimed invention operates quite differently than the process of either Bosley or Krylov.

WPB:243515:1

None of the present claims are rendered obvious by the one or more of Krylov, Bosley, or Bailie.

For the foregoing reasons, each of the pending claims is patentable over any one of, or any combination of, Krylov, Bosley, or Bailie. Accordingly, entry of this Response and withdrawal of all §103 rejections is respectfully requested.

Conclusion

The currently pending claims before the examiner are supported throughout the specification and are patentable over the prior art. No new matter has been added. This application is now in full condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any underpayment or credit any overpayment of fees under 37 CFR 1.16 or 1.17 as required by this paper to Deposit Account 50-3110.

The examiner is cordially invited to call the undersigned if clarification is needed on any matter within this amendment, or if the examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: May 2, 2006

Docket No. 8021-30



Stanley A. Kim, Ph.D., Esq.
Registration No. 42,730
RUDEN McCLOSKY, SMITH,
SCHUSTER & RUSSELL, P.A.
222 Lakeview Avenue
Suite 800
West Palm Beach, FL 33401-6112
Telephone: (561) 838-4512
Facsimile: (561) 514-3412